

# MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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## INTRODUCTION.

The MONTHLY WEATHER REVIEW for March, 1898, is based on 2,929 reports from stations occupied by regular and voluntary observers, classified as follows: 147 from Weather Bureau stations; numerous special river stations; 32 from post surgeons, received through the Surgeon General, United States Army; 2,583 from voluntary observers; 96 received through the Southern Pacific Railway Company; 13 from Life-Saving stations, received through the Superintendent United States Life-Saving Service; 31 from Canadian stations; 20 from Mexican stations; 7 from Jamaica, W. I. International simultaneous observations are received from a few stations and used, together with trustworthy newspaper extracts and special reports.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. Curtis J. Lyons, Meteorologist to the Government Survey, Honolulu; Dr. Mariano Bárcena, Director of the Central Meteorological Observatory of Mexico; Mr. Maxwell Hall, Government Meteorologist,

Kingston, Jamaica; Capt. S. I. Kimball, Superintendent of the United States Life-Saving Service; and Commander J. E. Craig, Hydrographer, United States Navy.

The REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to generally conform to the modern international system of standard meridians, one hour apart, beginning with Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local meridian is mentioned.

## STORM WARNINGS AND WEATHER FORECASTS.

By Lieut. Col. H. H. C. DUNWOODY, Supervising Forecast Official.

Under this head it is proposed to make note of all extreme and injurious weather conditions occurring during the month, and the warnings of the same issued by the Bureau, with instances, as far as reported by observers or the press, in which these warnings were of special public benefit. The signals displayed by the Weather Bureau will be referred to as "information," "storm," "hurricane," "cold-wave," and "norther," respectively.

The injurious weather conditions of note that occurred during the month were the storm of the 2d-5th, which moved from the east Gulf to the New England coast, the cold waves of the 20th-23d and 24-28th in the west and northwest, and the heavy rains in the central valleys which resulted in the floods during the latter part of the month in the Ohio and central Mississippi rivers. Injurious low temperatures occurred in the truck raising districts of Texas on the 4th, and frosts, which in some instances were quite destructive, occurred in the fruit regions of California on nearly every night from the 12th to the 27th, inclusive. A severe norther, with gales on the coast, prevailed in California on the 9th and 10th.

### STORM OF MARCH 2-5.

In connection with this storm the following maximum velocities during the twelve hours preceding the hours named were recorded, viz: 3d, 8 p. m., Savannah, 52 northeast; Charleston, 36 north. 4th, 8 a. m., Charleston, 46 northeast; Cape Henry, 52 northeast. 4th, 8 p. m., Atlantic City, 40

north; Block Island, 48 northeast; Nantucket, 42 northeast. 5th, 8 a. m., Block Island, 64 northwest.

Information signals for this storm were ordered from Pensacola to Norfolk at 9:30 a. m. of the 3d. These were changed to storm northeast from Jacksonville to Cape Henry at 1:30 p. m. of the 3d. At 10 p. m. of the 3d information signals were extended as far north as Boston, and storm northeast to Cape May. At 9:30 a. m. of the 4th storm northeast signals were extended to Boston. All shipping was well warned and no serious losses were reported.

### COLD WAVES OF 20-23 AND 24-28 IN THE WEST AND NORTHWEST.

Concerning these cold waves Prof. E. B. Garriott, in charge of the Chicago forecast district, reports:

About 650 points in Wyoming, Colorado, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Wisconsin, Michigan, Illinois, and Indiana were forewarned by telegraph of the approach of the cold wave of the 20th-23d, together with all transportation interests in the States named, and thousands of persons and places were warned by prompt telephone and mail service. The advance of the cold wave was attended by light snow as far south as southern Kansas and southern Missouri. High winds were experienced over the western lake region during the day and night of the 22d. On the 21st, when the storm center occupied the middle Rocky Mountain region, the following message was telegraphed to the open lake ports: "Much colder, with snow flurries and high east to northeast winds by Tuesday morning;" and on the morning of the 22d, when the storm center had advanced to north-western Illinois, the following was telegraphed to the open ports: "Cold wave to-night, with snow flurries; wind will shift to high northwest this afternoon." The night of the 22d the wind reached a maximum